



#6

SEQUENCE LISTING

<110> Jegla, Timothy James
Witzel, Julie Dickson
ICAgene, Inc.

<120> Slo2 and Slo4, Novel Potassium Channel Proteins from
Human Brain

<130> 018512-006810US

<140> US 09/921,159

<141> 2001-08-01

<150> US 60/249,112

<151> 2000-11-15

<160> 38

<170> PatentIn Ver. 2.1

<210> 1

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<212> DNA

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<222> (1)..(3708)

<223> human Slo2 potassium channel alpha subunit

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Pro Gly Gly Ala Pro Ala Gly Ala Ala Pro Glu Glu Pro His Gly
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ctc agc ccg ctg ctg ccg gcc cgc ggc ggg ggc tcc gtg ggc agc gac 144
Leu Ser Pro Leu Leu Pro Ala Arg Gly Gly Gly Ser Val Gly Ser Asp
35 40 45

gtg ggc cag agg ctt cct gta gaa gat ttc agc ctg gac tcc tcc ctg 192
Val Gly Gln Arg Leu Pro Val Glu Asp Phe Ser Leu Asp Ser Ser Leu
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tct cag gtc cag gtg gag ttc tac gtc aac gag aac acc ttc aag gag 240
Ser Gln Val Gln Val Glu Phe Tyr Val Asn Glu Asn Thr Phe Lys Glu
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cgg ctc aag ctg ttc ttc atc aaa aac caa aga tcg agc ctg agg atc 288
Arg Leu Lys Leu Phe Phe Ile Lys Asn Gln Arg Ser Ser Leu Arg Ile
85 90 95

cgg ctg ttc aac ttc tcc ctg aag ctg ctc acc tgc ctg ctc tac att 336
Arg Leu Phe Asn Phe Ser Leu Lys Leu Leu Thr Cys Leu Leu Tyr Ile
100 105 110

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| gtg cgc gtc ctg ctc gat gac ccg gcc ctg ggc atc gga tgc tgg ggc | 384 |
| Val Arg Val Leu Leu Asp Asp Pro Ala Leu Gly Ile Gly Cys Trp Gly | |
| 115 120 125 | |
| tgc cca aag cag aac tac tcc ttc aat gac tcg tcc tcc gag atc aac | 432 |
| Cys Pro Lys Gln Asn Tyr Ser Phe Asn Asp Ser Ser Ser Glu Ile Asn | |
| 130 135 140 | |
| tgg gct cct att ctg tgg gtg gag aga aag atg aca ctg tgg gcg atc | 480 |
| Trp Ala Pro Ile Leu Trp Val Glu Arg Lys Met Thr Leu Trp Ala Ile | |
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| cag gtc atc gtg gcc ata ata agc ttc ctg gag acg atg ctt ctc atc | 528 |
| Gln Val Ile Val Ala Ile Ile Ser Phe Leu Glu Thr Met Leu Leu Ile | |
| 165 170 175 | |
| tac ctc agc tac aaa ggc aac atc tgg gag cag atc ttc cgc gtg tcc | 576 |
| Tyr Leu Ser Tyr Lys Gly Asn Ile Trp Glu Gln Ile Phe Arg Val Ser | |
| 180 185 190 | |
| ttc gtc ctg gag atg atc aac act ctg ccc ttc atc atc acg atc ttc | 624 |
| Phe Val Leu Glu Met Ile Asn Thr Leu Pro Phe Ile Ile Thr Ile Phe | |
| 195 200 205 | |
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| Trp Pro Pro Leu Arg Asn Leu Phe Ile Pro Val Phe Leu Asn Cys Trp | |
| 210 215 220 | |
| ctg gcc aag cac gcg ctg gaa aac atg att aat gac ttc cac cgt gcc | 720 |
| Leu Ala Lys His Ala Leu Glu Asn Met Ile Asn Asp Phe His Arg Ala | |
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| Ile Leu Arg Thr Gln Ser Ala Met Phe Asn Gln Val Leu Ile Leu Phe | |
| 245 250 255 | |
| tgc acc ctg ctg tgc ctc gtt ttc acg ggg acc tgc ggc atc cag cac | 816 |
| Cys Thr Leu Leu Cys Leu Val Phe Thr Gly Thr Cys Gly Ile Gln His | |
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| ctg gag cgg gcg ggc gag aac ctg tcc ctc ctg acc tcc ttc tac ttc | 864 |
| Leu Glu Arg Ala Gly Glu Asn Leu Ser Leu Leu Thr Ser Phe Tyr Phe | |
| 275 280 285 | |
| tgc atc gtc acc ttc tcc acc gtg ggc tac ggt gac gtc acg ccc aag | 912 |
| Cys Ile Val Thr Phe Ser Thr Val Gly Tyr Gly Asp Val Thr Pro Lys | |
| 290 295 300 | |
| atc tgg cca tcg cag ctg ctg gtg gtc atc atg atc tgc gtg gcc ctc | 960 |
| Ile Trp Pro Ser Gln Leu Leu Val Val Ile Met Ile Cys Val Ala Leu | |
| 305 310 315 320 | |
| gtg gtg ctc cca ctg cag ttc gag gag ctc gtc tac ctc tgg atg gag | 1008 |
| Val Val Leu Pro Leu Gln Phe Glu Glu Leu Val Tyr Leu Trp Met Glu | |
| 325 330 335 | |
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| 340 345 350 | |

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| aag cac gtg gtc ctg tgt gtc agc tcc ctc aag atc gac ctt ctc atg | 1104 |
| Lys His Val Val Leu Cys Val Ser Ser Leu Lys Ile Asp Leu Leu Met | |
| 355 360 365 | |
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| Asp Phe Leu Asn Glu Phe Tyr Ala His Pro Arg Leu Gln Asp Tyr Tyr | |
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| Val Val Ile Leu Cys Pro Thr Glu Met Asp Val Gln Val Arg Arg Val | |
| 385 390 395 400 | |
| ctg cag atc cct ctg tgg tcc cag cgg gtc atc tac ctc cag ggc tct | 1248 |
| Leu Gln Ile Pro Leu Trp Ser Gln Arg Val Ile Tyr Leu Gln Gly Ser | |
| 405 410 415 | |
| gca ctc aaa gac cag gac ctc atg cga gcc aag atg gac aat ggg gag | 1296 |
| Ala Leu Lys Asp Gln Asp Leu Met Arg Ala Lys Met Asp Asn Gly Glu | |
| 420 425 430 | |
| gcc tgc ttc atc ctc agc agc agg aac gag gtg gac cgc acg gct gca | 1344 |
| Ala Cys Phe Ile Leu Ser Ser Arg Asn Glu Val Asp Arg Thr Ala Ala | |
| 435 440 445 | |
| gac cac cag acc atc ctg cgc gcc tgg gcc gtg aag gac ttc gcc ccc | 1392 |
| Asp His Gln Thr Ile Leu Arg Ala Trp Ala Val Lys Asp Phe Ala Pro | |
| 450 455 460 | |
| aac tgc ccc ctc tac gtc cag atc ctc aaa cct gaa aac aag ttt cac | 1440 |
| Asn Cys Pro Leu Tyr Val Gln Ile Leu Lys Pro Glu Asn Lys Phe His | |
| 465 470 475 480 | |
| gtc aag ttt gct gac cac gtg gtg tgt gag gag gag tgc aag tac gcc | 1488 |
| Val Lys Phe Ala Asp His Val Val Cys Glu Glu Glu Cys Lys Tyr Ala | |
| 485 490 495 | |
| atg ctg gcg ctg aac tgc atc tgc ccg gcg acc tcc acc ctc atc acc | 1536 |
| Met Leu Ala Leu Asn Cys Ile Cys Pro Ala Thr Ser Thr Leu Ile Thr | |
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| Leu Leu Val His Thr Ser Arg Gly Gln Glu Gly Gln Glu Ser Pro Glu | |
| 515 520 525 | |
| cag tgg cag cgc atg tat ggg cgc tgc tcc ggc aac gag gtg tac cac | 1632 |
| Gln Trp Gln Arg Met Tyr Gly Arg Cys Ser Gly Asn Glu Val Tyr His | |
| 530 535 540 | |
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| Ile Arg Met Gly Asp Ser Lys Phe Phe Arg Glu Tyr Glu Gly Lys Ser | |
| 545 550 555 560 | |
| ttc acc tac gcg gcc ttc cac gcc cac aag aag tat ggc gtg tgc ctc | 1728 |
| Phe Thr Tyr Ala Ala Phe His Ala His Lys Lys Tyr Gly Val Cys Leu | |
| 565 570 575 | |
| atc ggg ctg aag cgg gag gac aac aag agc atc ctg ctg aac ccg ggg | 1776 |
| Ile Gly Leu Lys Arg Glu Asp Asn Lys Ser Ile Leu Leu Asn Pro Gly | |
| 580 585 590 | |

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| ccc cgg cac atc ctg gcc gcc tct gac acc tgc ttc tac atc aac atc Pro Arg His Ile Leu Ala Ala Ser Asp Thr Cys Phe Tyr Ile Asn Ile 595 600 605 | 1824 |
| acc aag gag gag aac tcg gcc ttc atc ttc aag cag gag gag aag cgg Thr Lys Glu Glu Asn Ser Ala Phe Ile Phe Lys Gln Glu Glu Lys Arg 610 615 620 | 1872 |
| aag aag agg gcc ttc tcg ggg cag ggg ctg cac gag ggt ccg gcc cgc Lys Lys Arg Ala Phe Ser Gly Gln Gly Leu His Glu Gly Pro Ala Arg 625 630 635 640 | 1920 |
| ctg ccc gtg cac agc atc atc gcc tcc atg gtg gcc atg gac ctg cag Leu Pro Val His Ser Ile Ile Ala Ser Met Val Ala Met Asp Leu Gln 645 650 655 | 1968 |
| ggc aca gag cac cgg cct acg cag agc ggc ggt ggg ggc ggg ggc agc Gly Thr Glu His Arg Pro Thr Gln Ser Gly Gly Gly Gly Gly Ser 660 665 670 | 2016 |
| aag ctg gca ctg ccc acg gag aac ggc tcg ggc agc cgg cgg ccc agc Lys Leu Ala Leu Pro Thr Glu Asn Gly Ser Gly Ser Arg Arg Pro Ser 675 680 685 | 2064 |
| atc gcg ccc gtc ctg gaa ctg gcc gac agc tca gcc ctg ctg ccc tgc Ile Ala Pro Val Leu Glu Leu Ala Asp Ser Ser Ala Leu Leu Pro Cys 690 695 700 | 2112 |
| gac ctg ctg agc gac cag tcg gag gat gag gtg acg ccg tcg gac gac Asp Leu Leu Ser Asp Gln Ser Glu Asp Glu Val Thr Pro Ser Asp Asp 705 710 715 720 | 2160 |
| gag ggg ctc tcc gtg gta gag tat gtg aag ggc tac cct ccc aac tcg Glu Gly Leu Ser Val Val Glu Tyr Val Lys Gly Tyr Pro Pro Asn Ser 725 730 735 | 2208 |
| ccc tac atc gtc agc tcc cca acc ctg tgc cac ctc ctg cct gtg aaa Pro Tyr Ile Val Ser Ser Pro Thr Leu Cys His Leu Leu Pro Val Lys 740 745 750 | 2256 |
| gcc ccc ttc tgc tgc ctg cgg ctg gac aag ggc tgc aag cac aac agc Ala Pro Phe Cys Cys Leu Arg Leu Asp Lys Gly Cys Lys His Asn Ser 755 760 765 | 2304 |
| tat gaa gac gcc aag gcc tac ggg ttc aag aac aag ctg atc atc gtc Tyr Glu Asp Ala Lys Ala Tyr Gly Phe Lys Asn Lys Leu Ile Ile Val 770 775 780 | 2352 |
| tcg gca gag acg gcc ggc aat ggg ctg tac aac ttc atc gtg cca ctg Ser Ala Glu Thr Ala Gly Asn Gly Leu Tyr Asn Phe Ile Val Pro Leu 785 790 795 800 | 2400 |
| cgg gcc tac tac aga tcc cgc aag gag ctg aac ccc atc gtg ctg ctg Arg Ala Tyr Tyr Arg Ser Arg Lys Glu Leu Asn Pro Ile Val Leu Leu 805 810 815 | 2448 |
| ctg gac aac aag ccc gac cac cac ttc ctg gaa gcc atc tgc tgc ttc Leu Asp Asn Lys Pro Asp His His Phe Leu Glu Ala Ile Cys Cys Phe 820 825 830 | 2496 |

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| ctg cag tgt ggc atc atc tat gcg gac aac ctg gtg gtg gtg gac aag Leu Gln Cys Gly Ile Ile Tyr Ala Asp Asn Leu Val Val Val Asp Lys 850 855 860 | 2592 |
| gag agc acc atg agc gcc gag gag gac tac atg gcg gac gcc aag acc Glu Ser Thr Met Ser Ala Glu Glu Asp Tyr Met Ala Asp Ala Lys Thr 865 870 875 880 | 2640 |
| atc gtc aac gtg cag acc atg ttc cgg ctc ttc ccc agc ctc agc atc Ile Val Asn Val Gln Thr Met Phe Arg Leu Phe Pro Ser Leu Ser Ile 885 890 895 | 2688 |
| acc acg gag ctc acc cac cct tcc aac atg cgc ttc atg cag ttc cgc Thr Thr Glu Leu Thr His Pro Ser Asn Met Arg Phe Met Gln Phe Arg 900 905 910 | 2736 |
| gcc aag gac agc tac tct ctg gct ctt tcc aaa cta gaa aag agg gag Ala Lys Asp Ser Tyr Ser Leu Ala Leu Ser Lys Leu Glu Lys Arg Glu 915 920 925 | 2784 |
| cga gag aat ggc tcc aac ctg gcc ttc atg ttc cgc ctg ccg ttc gcc Arg Glu Asn Gly Ser Asn Leu Ala Phe Met Phe Arg Leu Pro Phe Ala 930 935 940 | 2832 |
| gcc ggc cgc gtc ttc agc atc agc atg ttg gac aca ctg ctc tac cag Ala Gly Arg Val Phe Ser Ile Ser Met Leu Asp Thr Leu Leu Tyr Gln 945 950 955 960 | 2880 |
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| ctg gac acc acg ccg ggc tcg ggg tac ctc tgt gcc atg aaa atc acc Leu Asp Thr Thr Pro Gly Ser Gly Tyr Leu Cys Ala Met Lys Ile Thr 980 985 990 | 2976 |
| gag ggc gac ctg tgg atc cgc acg tac ggc cgc ctc ttc cag aag ctc Glu Gly Asp Leu Trp Ile Arg Thr Tyr Gly Arg Leu Phe Gln Lys Leu 995 1000 1005 | 3024 |
| tgc tcc tcc agc gcc gag atc ccc att ggc atc tac cgg aca gag agc Cys Ser Ser Ser Ala Glu Ile Pro Ile Gly Ile Tyr Arg Thr Glu Ser 1010 1015 1020 | 3072 |
| cac gtc ttc tcc acc tcg gag ccc cac gac ctc aga gcc cag tcc cag His Val Phe Ser Thr Ser Glu Pro His Asp Leu Arg Ala Gln Ser Gln 1025 1030 1035 1040 | 3120 |
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 Thr Gly Gly Gly Asp Pro Ala Glu His Pro Leu Leu Arg Arg Lys Ser
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 Arg Arg Ser Glu Arg Gln Glu Leu Ser Glu Leu Val Lys Asn Arg Met
 1125 1130 1135
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 Lys His Leu Gly Leu Pro Thr Thr Gly Tyr Glu Asp Val Ala Asn Leu
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 aca gcc agt gat gtc atg aat cgg gta aac ctg gga tat ttg caa gac 3504
 Thr Ala Ser Asp Val Met Asn Arg Val Asn Leu Gly Tyr Leu Gln Asp
 1155 1160 1165
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 Glu Met Asn Asp His Gln Asn Thr Leu Ser Tyr Val Leu Ile Asn Pro
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 Ser Asp Pro Leu Ala His Val Ala Ser Ser Ser Gln Ser Arg Lys Ser
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 Thr Gln Leu
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 Leu Ser Pro Leu Leu Pro Ala Arg Gly Gly Gly Ser Val Gly Ser Asp
 35 40 45

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Gly | Gln | Arg | Leu | Pro | Val | Glu | Asp | Phe | Ser | Leu | Asp | Ser | Ser | Leu | 50 | 55 | 60 |
| Ser | Gln | Val | Gln | Val | Glu | Phe | Tyr | Val | Asn | Glu | Asn | Thr | Phe | Lys | Glu | 65 | 70 | 75 |
| Arg | Leu | Lys | Leu | Phe | Phe | Ile | Lys | Asn | Gln | Arg | Ser | Ser | Leu | Arg | Ile | 85 | 90 | 95 |
| Arg | Leu | Phe | Asn | Phe | Ser | Leu | Lys | Leu | Leu | Thr | Cys | Leu | Leu | Tyr | Ile | 100 | 105 | 110 |
| Val | Arg | Val | Leu | Leu | Asp | Asp | Pro | Ala | Leu | Gly | Ile | Gly | Cys | Trp | Gly | 115 | 120 | 125 |
| Cys | Pro | Lys | Gln | Asn | Tyr | Ser | Phe | Asn | Asp | Ser | Ser | Ser | Glu | Ile | Asn | 130 | 135 | 140 |
| Trp | Ala | Pro | Ile | Leu | Trp | Val | Glu | Arg | Lys | Met | Thr | Leu | Trp | Ala | Ile | 145 | 150 | 155 |
| Gln | Val | Ile | Val | Ala | Ile | Ile | Ser | Phe | Leu | Glu | Thr | Met | Leu | Leu | Ile | 165 | 170 | 175 |
| Tyr | Leu | Ser | Tyr | Lys | Gly | Asn | Ile | Trp | Glu | Gln | Ile | Phe | Arg | Val | Ser | 180 | 185 | 190 |
| Phe | Val | Leu | Glu | Met | Ile | Asn | Thr | Leu | Pro | Phe | Ile | Ile | Thr | Ile | Phe | 195 | 200 | 205 |
| Trp | Pro | Pro | Leu | Arg | Asn | Leu | Phe | Ile | Pro | Val | Phe | Leu | Asn | Cys | Trp | 210 | 215 | 220 |
| Leu | Ala | Lys | His | Ala | Leu | Glu | Asn | Met | Ile | Asn | Asp | Phe | His | Arg | Ala | 225 | 230 | 235 |
| Ile | Leu | Arg | Thr | Gln | Ser | Ala | Met | Phe | Asn | Gln | Val | Leu | Ile | Leu | Phe | 245 | 250 | 255 |
| Cys | Thr | Leu | Leu | Cys | Leu | Val | Phe | Thr | Gly | Thr | Cys | Gly | Ile | Gln | His | 260 | 265 | 270 |
| Leu | Glu | Arg | Ala | Gly | Glu | Asn | Leu | Ser | Leu | Leu | Thr | Ser | Phe | Tyr | Phe | 275 | 280 | 285 |
| Cys | Ile | Val | Thr | Phe | Ser | Thr | Val | Gly | Tyr | Gly | Asp | Val | Thr | Pro | Lys | 290 | 295 | 300 |
| Ile | Trp | Pro | Ser | Gln | Leu | Leu | Val | Val | Ile | Met | Ile | Cys | Val | Ala | Leu | 305 | 310 | 315 |
| Val | Val | Leu | Pro | Leu | Gln | Phe | Glu | Glu | Leu | Val | Tyr | Leu | Trp | Met | Glu | 325 | 330 | 335 |
| Arg | Gln | Lys | Ser | Gly | Gly | Asn | Tyr | Ser | Arg | His | Arg | Ala | Gln | Thr | Glu | 340 | 345 | 350 |
| Lys | His | Val | Val | Leu | Cys | Val | Ser | Ser | Leu | Lys | Ile | Asp | Leu | Leu | Met | 355 | 360 | 365 |
| Asp | Phe | Leu | Asn | Glu | Phe | Tyr | Ala | His | Pro | Arg | Leu | Gln | Asp | Tyr | Tyr | 370 | 375 | 380 |
| Val | Val | Ile | Leu | Cys | Pro | Thr | Glu | Met | Asp | Val | Gln | Val | Arg | Arg | Val | 385 | 390 | 395 |
| Leu | Gln | Ile | Pro | Leu | Trp | Ser | Gln | Arg | Val | Ile | Tyr | Leu | Gln | Gly | Ser | 405 | 410 | 415 |
| Ala | Leu | Lys | Asp | Gln | Asp | Leu | Met | Arg | Ala | Lys | Met | Asp | Asn | Gly | Glu | 420 | 425 | 430 |
| Ala | Cys | Phe | Ile | Leu | Ser | Ser | Arg | Asn | Glu | Val | Asp | Arg | Thr | Ala | Ala | 435 | 440 | 445 |
| Asp | His | Gln | Thr | Ile | Leu | Arg | Ala | Trp | Ala | Val | Lys | Asp | Phe | Ala | Pro | 450 | 455 | 460 |
| Asn | Cys | Pro | Leu | Tyr | Val | Gln | Ile | Leu | Lys | Pro | Glu | Asn | Lys | Phe | His | 465 | 470 | 475 |
| Val | Lys | Phe | Ala | Asp | His | Val | Val | Cys | Glu | Glu | Glu | Cys | Lys | Tyr | Ala | 485 | 490 | 495 |
| Met | Leu | Ala | Leu | Asn | Cys | Ile | Cys | Pro | Ala | Thr | Ser | Thr | Leu | Ile | Thr | 500 | 505 | 510 |
| Leu | Leu | Val | His | Thr | Ser | Arg | Gly | Gln | Glu | Gly | Gln | Glu | Ser | Pro | Glu | 515 | 520 | 525 |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| Gln | Trp | Gln | Arg | Met | Tyr | Gly | Arg | Cys | Ser | Gly | Asn | Glu | Val | Tyr | His | 530 | 535 | 540 |
| Ile | Arg | Met | Gly | Asp | Ser | Lys | Phe | Phe | Arg | Glu | Tyr | Glu | Gly | Lys | Ser | 545 | 550 | 555 |
| Phe | Thr | Tyr | Ala | Ala | Phe | His | Ala | His | Lys | Lys | Tyr | Gly | Val | Cys | Leu | 565 | 570 | 575 |
| Ile | Gly | Leu | Lys | Arg | Glu | Asp | Asn | Lys | Ser | Ile | Leu | Leu | Asn | Pro | Gly | 580 | 585 | 590 |
| Pro | Arg | His | Ile | Leu | Ala | Ala | Ser | Asp | Thr | Cys | Phe | Tyr | Ile | Asn | Ile | 595 | 600 | 605 |
| Thr | Lys | Glu | Glu | Asn | Ser | Ala | Phe | Ile | Phe | Lys | Gln | Glu | Glu | Lys | Arg | 610 | 615 | 620 |
| Lys | Lys | Arg | Ala | Phe | Ser | Gly | Gln | Gly | Leu | His | Glu | Gly | Pro | Ala | Arg | 625 | 630 | 635 |
| Leu | Pro | Val | His | Ser | Ile | Ile | Ala | Ser | Met | Val | Ala | Met | Asp | Leu | Gln | 645 | 650 | 655 |
| Gly | Thr | Glu | His | Arg | Pro | Thr | Gln | Ser | Gly | Gly | Gly | Gly | Gly | Gly | Ser | 660 | 665 | 670 |
| Lys | Leu | Ala | Leu | Pro | Thr | Glu | Asn | Gly | Ser | Gly | Ser | Arg | Arg | Pro | Ser | 675 | 680 | 685 |
| Ile | Ala | Pro | Val | Leu | Glu | Leu | Ala | Asp | Ser | Ser | Ala | Leu | Leu | Pro | Cys | 690 | 695 | 700 |
| Asp | Leu | Leu | Ser | Asp | Gln | Ser | Glu | Asp | Glu | Val | Thr | Pro | Ser | Asp | Asp | 705 | 710 | 715 |
| Glu | Gly | Leu | Ser | Val | Glu | Tyr | Val | Lys | Gly | Tyr | Pro | Pro | Asn | Ser | | 725 | 730 | 735 |
| Pro | Tyr | Ile | Val | Ser | Ser | Pro | Thr | Leu | Cys | His | Leu | Leu | Pro | Val | Lys | 740 | 745 | 750 |
| Ala | Pro | Phe | Cys | Cys | Leu | Arg | Leu | Asp | Lys | Gly | Cys | Lys | His | Asn | Ser | 755 | 760 | 765 |
| Tyr | Glu | Asp | Ala | Lys | Ala | Tyr | Gly | Phe | Lys | Asn | Lys | Leu | Ile | Ile | Val | 770 | 775 | 780 |
| Ser | Ala | Glu | Thr | Ala | Gly | Asn | Gly | Leu | Tyr | Asn | Phe | Ile | Val | Pro | Leu | 785 | 790 | 795 |
| Arg | Ala | Tyr | Tyr | Arg | Ser | Arg | Lys | Glu | Leu | Asn | Pro | Ile | Val | Leu | Leu | 805 | 810 | 815 |
| Leu | Asp | Asn | Lys | Pro | Asp | His | His | Phe | Leu | Glu | Ala | Ile | Cys | Cys | Phe | 820 | 825 | 830 |
| Pro | Met | Val | Tyr | Tyr | Met | Glu | Gly | Ser | Val | Asp | Asn | Leu | Asp | Ser | Leu | 835 | 840 | 845 |
| Leu | Gln | Cys | Gly | Ile | Ile | Tyr | Ala | Asp | Asn | Leu | Val | Val | Val | Asp | Lys | 850 | 855 | 860 |
| Glu | Ser | Thr | Met | Ser | Ala | Glu | Glu | Asp | Tyr | Met | Ala | Asp | Ala | Lys | Thr | 865 | 870 | 875 |
| Ile | Val | Asn | Val | Gln | Thr | Met | Phe | Arg | Leu | Phe | Pro | Ser | Leu | Ser | Ile | 885 | 890 | 895 |
| Thr | Thr | Glu | Leu | Thr | His | Pro | Ser | Asn | Met | Arg | Phe | Met | Gln | Phe | Arg | 900 | 905 | 910 |
| Ala | Lys | Asp | Ser | Tyr | Ser | Leu | Ala | Leu | Ser | Lys | Leu | Glu | Lys | Arg | Glu | 915 | 920 | 925 |
| Arg | Glu | Asn | Gly | Ser | Asn | Leu | Ala | Phe | Met | Phe | Arg | Leu | Pro | Phe | Ala | 930 | 935 | 940 |
| Ala | Gly | Arg | Val | Phe | Ser | Ile | Ser | Met | Leu | Asp | Thr | Leu | Leu | Tyr | Gln | 945 | 950 | 955 |
| Ser | Phe | Val | Lys | Asp | Tyr | Met | Ile | Thr | Ile | Thr | Arg | Leu | Leu | Leu | Gly | 965 | 970 | 975 |
| Leu | Asp | Thr | Thr | Pro | Gly | Ser | Gly | Tyr | Leu | Cys | Ala | Met | Lys | Ile | Thr | 980 | 985 | 990 |
| Glu | Gly | Asp | Leu | Trp | Ile | Arg | Thr | Tyr | Gly | Arg | Leu | Phe | Gln | Lys | Leu | 995 | 1000 | 1005 |

Cys Ser Ser Ser Ala Glu Ile Pro Ile Gly Ile Tyr Arg Thr Glu Ser
 1010 1015 1020
 His Val Phe Ser Thr Ser Glu Pro His Asp Leu Arg Ala Gln Ser Gln
 1025 1030 1035 1040
 Ile Ser Val Asn Val Glu Asp Cys Glu Asp Thr Arg Glu Val Lys Gly
 1045 1050 1055
 Pro Trp Gly Ser Arg Ala Gly Thr Gly Gly Ser Ser Gln Gly Arg His
 1060 1065 1070
 Thr Gly Gly Gly Asp Pro Ala Glu His Pro Leu Leu Arg Arg Lys Ser
 1075 1080 1085
 Leu Gln Trp Ala Arg Arg Leu Ser Arg Lys Ala Pro Lys Gln Ala Gly
 1090 1095 1100
 Arg Ala Ala Ala Ala Glu Trp Ile Ser Gln Gln Arg Leu Ser Leu Tyr
 1105 1110 1115 1120
 Arg Arg Ser Glu Arg Gln Glu Leu Ser Glu Leu Val Lys Asn Arg Met
 1125 1130 1135
 Lys His Leu Gly Leu Pro Thr Thr Gly Tyr Glu Asp Val Ala Asn Leu
 1140 1145 1150
 Thr Ala Ser Asp Val Met Asn Arg Val Asn Leu Gly Tyr Leu Gln Asp
 1155 1160 1165
 Glu Met Asn Asp His Gln Asn Thr Leu Ser Tyr Val Leu Ile Asn Pro
 1170 1175 1180
 Pro Pro Asp Thr Arg Leu Glu Pro Ser Asp Ile Val Tyr Leu Ile Arg
 1185 1190 1195 1200
 Ser Asp Pro Leu Ala His Val Ala Ser Ser Ser Gln Ser Arg Lys Ser
 1205 1210 1215
 Ser Cys Ser His Lys Leu Ser Ser Cys Asn Pro Glu Thr Arg Asp Glu
 1220 1225 1230
 Thr Gln Leu
 1235

<210> 3
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 <212> DNA
 <213> Homo sapiens

 <220>
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 <222> (1)..(3408)
 <223> human Slo4 potassium channel alpha subunit

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 atg gtt gat ttg gag agc gaa gtg ccc cct ctg cct ccc agg tac agg 48
 Met Val Asp Leu Glu Ser Glu Val Pro Pro Leu Pro Pro Arg Tyr Arg
 1 5 10 15

 ttt cga gat ttg ctg cta ggg gac caa gga tgg caa aac gac gac agg 96
 Phe Arg Asp Leu Leu Leu Gly Asp Gln Gly Trp Gln Asn Asp Asp Arg
 20 25 30

 gta caa gtt gaa ttc tat atg aat gaa aat aca ttt aaa gaa aga cta 144
 Val Gln Val Glu Phe Tyr Met Asn Glu Asn Thr Phe Lys Glu Arg Leu
 35 40 45

 aaa tta ttt ttc ata aaa aac cag aga tca agt cta agg ata cgc ctg 192
 Lys Leu Phe Phe Ile Lys Asn Gln Arg Ser Ser Leu Arg Ile Arg Leu
 50 55 60

| | |
|---|-----|
| ttc aat ttt tct ctc aaa tta cta agc tgc tta tta tac ata atc cga | 240 |
| Phe Asn Phe Ser Leu Lys Leu Leu Ser Cys Leu Leu Tyr Ile Ile Arg | |
| 65 70 75 80 | |
| gta cta cta gaa aac cct tca caa gga aat gaa tgg tct cat atc ttt | 288 |
| Val Leu Leu Glu Asn Pro Ser Gln Gly Asn Glu Trp Ser His Ile Phe | |
| 85 90 95 | |
| tgg gtg aac aga agt cta cct ttg tgg ggc tta cag gtt tca gtg gca | 336 |
| Trp Val Asn Arg Ser Leu Pro Leu Trp Gly Leu Gln Val Ser Val Ala | |
| 100 105 110 | |
| ttg ata agt ctg ttt gaa aca ata tta ctt ggt tat ctt agt tat aag | 384 |
| Leu Ile Ser Leu Phe Glu Thr Ile Leu Leu Gly Tyr Leu Ser Tyr Lys | |
| 115 120 125 | |
| gga aac atc tgg gaa cag att tta cga ata ccc ttc atc ttg gaa ata | 432 |
| Gly Asn Ile Trp Glu Gln Ile Leu Arg Ile Pro Phe Ile Leu Glu Ile | |
| 130 135 140 | |
| att aat gca gtt ccc ttc att atc tca ata ttc tgg cct tcc tta agg | 480 |
| Ile Asn Ala Val Pro Phe Ile Ile Ser Ile Phe Trp Pro Ser Leu Arg | |
| 145 150 155 160 | |
| aat cta ttt gtc cca gtc ttt ctg aac tgt tgg ctt gcc aaa cat gcc | 528 |
| Asn Leu Phe Val Pro Val Phe Leu Asn Cys Trp Leu Ala Lys His Ala | |
| 165 170 175 | |
| ttg gaa aat atg att aat gat cta cac aga gcc att cag cgt aca cag | 576 |
| Leu Glu Asn Met Ile Asn Asp Leu His Arg Ala Ile Gln Arg Thr Gln | |
| 180 185 190 | |
| tct gca atg ttt aat caa gtt ttg att tta ata tct aca tta cta tgc | 624 |
| Ser Ala Met Phe Asn Gln Val Leu Ile Leu Ile Ser Thr Leu Leu Cys | |
| 195 200 205 | |
| ctt atc ttc acc tgc att tgt ggg atc caa cat ctg gaa cga ata gga | 672 |
| Leu Ile Phe Thr Cys Ile Cys Gly Ile Gln His Leu Glu Arg Ile Gly | |
| 210 215 220 | |
| aag aag ctg aat ctc ttt gac tcc ctt tat ttc tgc att gtg acg ttt | 720 |
| Lys Lys Leu Asn Leu Phe Asp Ser Leu Tyr Phe Cys Ile Val Thr Phe | |
| 225 230 235 240 | |
| tct act gtg ggc ttc ggg gat gtc act cct gaa aca tgg tcc tcc aag | 768 |
| Ser Thr Val Gly Phe Gly Asp Val Thr Pro Glu Thr Trp Ser Ser Lys | |
| 245 250 255 | |
| ctt ttt gta gtt gct atg att tgt gtt gct ctt gtg gtt cta ccc ata | 816 |
| Leu Phe Val Val Ala Met Ile Cys Val Ala Leu Val Val Leu Pro Ile | |
| 260 265 270 | |
| cag ttt gaa cag ctg gct tat ttg tgg atg gag aga caa aag tca gga | 864 |
| Gln Phe Glu Gln Leu Ala Tyr Leu Trp Met Glu Arg Gln Lys Ser Gly | |
| 275 280 285 | |
| gga aac tat agt cga cat aga gct caa act gaa aag cat gtc gtc ctg | 912 |
| Gly Asn Tyr Ser Arg His Arg Ala Gln Thr Glu Lys His Val Val Leu | |
| 290 295 300 | |

| | |
|---|------|
| tgt gtc agc tca ctg aag att gat tta ctt atg gat ttt tta aat gaa | 960 |
| Cys Val Ser Ser Leu Lys Ile Asp Leu Leu Met Asp Phe Leu Asn Glu | |
| 305 310 315 320 | |
| ttc tat gct cat cct agg ctc cag gat tat tat gtg gtg att ttg tgt | 1008 |
| Phe Tyr Ala His Pro Arg Leu Gln Asp Tyr Tyr Val Val Ile Leu Cys | |
| 325 330 335 | |
| cct act gaa atg gat gta cag gtt cga agg gta ctg cag att cca atg | 1056 |
| Pro Thr Glu Met Asp Val Gln Val Arg Arg Val Leu Gln Ile Pro Met | |
| 340 345 350 | |
| tgg tcc caa cga gtt atc tac ctt caa ggt tca gcc ctt aaa gat caa | 1104 |
| Trp Ser Gln Arg Val Ile Tyr Leu Gln Gly Ser Ala Leu Lys Asp Gln | |
| 355 360 365 | |
| gac cta ttg aga gca aag atg gat gac gct gag gcc tgt ttt att ctc | 1152 |
| Asp Leu Leu Arg Ala Lys Met Asp Asp Ala Glu Ala Cys Phe Ile Leu | |
| 370 375 380 | |
| agt agc cgt tgt gaa gtg gat agg aca tca tct gat cac caa aca att | 1200 |
| Ser Ser Arg Cys Glu Val Asp Arg Thr Ser Ser Asp His Gln Thr Ile | |
| 385 390 395 400 | |
| ttg aga gca tgg gct gtg aaa gat ttt gct cca aat tgt cct ttg tat | 1248 |
| Leu Arg Ala Trp Ala Val Lys Asp Phe Ala Pro Asn Cys Pro Leu Tyr | |
| 405 410 415 | |
| gtc cag ata tta aag cct gaa aat aaa ttt cac atc aaa ttt gct gat | 1296 |
| Val Gln Ile Leu Lys Pro Glu Asn Lys Phe His Ile Lys Phe Ala Asp | |
| 420 425 430 | |
| cat gtt gtt tgt gaa gaa gag ttt aaa tac gcc atg tta gct tta aac | 1344 |
| His Val Val Cys Glu Glu Glu Phe Lys Tyr Ala Met Leu Ala Leu Asn | |
| 435 440 445 | |
| tgt ata tgc cca gca aca tct aca ctt att aca cta ctg gtt cat acc | 1392 |
| Cys Ile Cys Pro Ala Thr Ser Thr Leu Ile Thr Leu Leu Val His Thr | |
| 450 455 460 | |
| tct aga ggg caa gaa ggc cag caa tcg cca gaa caa tgg cag aag atg | 1440 |
| Ser Arg Gly Gln Glu Gly Gln Gln Ser Pro Glu Gln Trp Gln Lys Met | |
| 465 470 475 480 | |
| tac ggt aga tgc tcc ggg aat gaa gtc tac cac att gtt ttg gaa gaa | 1488 |
| Tyr Gly Arg Cys Ser Gly Asn Glu Val Tyr His Ile Val Leu Glu Glu | |
| 485 490 495 | |
| agt aca ttt ttt gct gaa tat gaa gga aag agt ttt aca tat gcc tct | 1536 |
| Ser Thr Phe Phe Ala Glu Tyr Glu Gly Lys Ser Phe Thr Tyr Ala Ser | |
| 500 505 510 | |
| ttc cat gca cac aaa aag ttt ggc gtc tgc ttg att ggt gtt agg agg | 1584 |
| Phe His Ala His Lys Lys Phe Gly Val Cys Leu Ile Gly Val Arg Arg | |
| 515 520 525 | |
| gag gat aat aaa aac att ttg ctg aat cca ggt cct cga tac att atg | 1632 |
| Glu Asp Asn Lys Asn Ile Leu Leu Asn Pro Gly Pro Arg Tyr Ile Met | |
| 530 535 540 | |

| | |
|---|------|
| aat tct aca gac ata tgc ttt tat att aat att acc aaa gaa gag aat | 1680 |
| Asn Ser Thr Asp Ile Cys Phe Tyr Ile Asn Ile Thr Lys Glu Glu Asn | |
| 545 550 555 560 | |
| tca gca ttt aaa aac caa gac cag cag aga aaa agc aat gtg tcc agg | 1728 |
| Ser Ala Phe Lys Asn Gln Asp Gln Gln Arg Lys Ser Asn Val Ser Arg | |
| 565 570 575 | |
| tcg ttt tat cat gga cct tcc aga tta cct gta cat agc ata att gcc | 1776 |
| Ser Phe Tyr His Gly Pro Ser Arg Leu Pro Val His Ser Ile Ile Ala | |
| 580 585 590 | |
| agc atg ggt act gtg gct ata gac ttg caa gat aca agc tgt aga tca | 1824 |
| Ser Met Gly Thr Val Ala Ile Asp Leu Gln Asp Thr Ser Cys Arg Ser | |
| 595 600 605 | |
| gca agt ggc cct acc ctg tct ctt cct aca gag gga agc aaa gaa ata | 1872 |
| Ala Ser Gly Pro Thr Leu Ser Leu Pro Thr Glu Gly Ser Lys Glu Ile | |
| 610 615 620 | |
| aga aga cct agc att gct cct gtt tta gag gtt gca gat aca tca tcg | 1920 |
| Arg Arg Pro Ser Ile Ala Pro Val Leu Glu Val Ala Asp Thr Ser Ser | |
| 625 630 635 640 | |
| att caa aca tgt gat ctt cta agt gac caa tca gaa gat gaa act aca | 1968 |
| Ile Gln Thr Cys Asp Leu Leu Ser Asp Gln Ser Glu Asp Glu Thr Thr | |
| 645 650 655 | |
| cca gat gaa gaa atg tct tca aac tta gag tat gct aaa ggt tac cca | 2016 |
| Pro Asp Glu Glu Met Ser Ser Asn Leu Glu Tyr Ala Lys Gly Tyr Pro | |
| 660 665 670 | |
| cct tat tct cca tat ata gga agt tca ccc act ttt tgt cat ctc ctt | 2064 |
| Pro Tyr Ser Ser Pro Tyr Ile Gly Ser Ser Pro Thr Phe Cys His Leu Leu | |
| 675 680 685 | |
| cat gaa aaa gta cca ttt tgc tgc tta aga tta gac aag agt tgc caa | 2112 |
| His Glu Lys Val Pro Phe Cys Cys Leu Arg Leu Asp Lys Ser Cys Gln | |
| 690 695 700 | |
| cat aac tac tat gag gat gca aaa gcc tat gga ttc aaa aat aaa cta | 2160 |
| His Asn Tyr Tyr Glu Asp Ala Lys Ala Tyr Gly Phe Lys Asn Lys Leu | |
| 705 710 715 720 | |
| att ata gtt gca gct gaa aca gct gga aat gga tta tat aac ttt att | 2208 |
| Ile Ile Val Ala Ala Glu Thr Ala Gly Asn Gly Leu Tyr Asn Phe Ile | |
| 725 730 735 | |
| gtt cct ctc agg gca tat tat aga cca aag aaa gaa ctt aat ccc ata | 2256 |
| Val Pro Leu Arg Ala Tyr Tyr Arg Pro Lys Lys Glu Leu Asn Pro Ile | |
| 740 745 750 | |
| gta ctg cta ttg gat aac ccg cca gat atg cat ttt ctg gat gca atc | 2304 |
| Val Leu Leu Leu Asp Asn Pro Pro Asp Met His Phe Leu Asp Ala Ile | |
| 755 760 765 | |
| tgt tgg ttt cca atg gtt tac tac atg gtg ggc tct att gac aac cta | 2352 |
| Cys Trp Phe Pro Met Val Tyr Tyr Met Val Gly Ser Ile Asp Asn Leu | |
| 770 775 780 | |

| | |
|---|------|
| gat gac tta ctc agg tgt gga gtg act ttt gct gct aat atg gtg gtt Asp Asp Leu Leu Arg Cys Gly Val Thr Phe Ala Ala Asn Met Val Val 785 790 795 800 | 2400 |
| gtg gat aaa gag agc acc atg agt gcc gag gaa gac tac atg gca gat Val Asp Lys Glu Ser Thr Met Ser Ala Glu Glu Asp Tyr Met Ala Asp 805 810 815 | 2448 |
| gcc aaa acc att gtg aac gtg cag aca ctc ttc agg ttg ttt tcc agt Ala Lys Thr Ile Val Asn Val Gln Thr Leu Phe Arg Leu Phe Ser Ser 820 825 830 | 2496 |
| ctc agt att atc aca gag cta act cac ccc gcc aac atg aga ttc atg Leu Ser Ile Ile Thr Glu Leu Thr His Pro Ala Asn Met Arg Phe Met 835 840 845 | 2544 |
| caa ttc aga gcc aaa gac tgt tac tct ctt gct ctt tca aaa ctg gaa Gln Phe Arg Ala Lys Asp Cys Tyr Ser Leu Ala Leu Ser_Lys Leu Glu 850 855 860 | 2592 |
| aag aaa gaa cgg gag aga ggc tct aac ttg gcc ttt atg ttt cga ctg Lys Lys Glu Arg Glu Arg Gly Ser Asn Leu Ala Phe Met Phe Arg Leu 865 870 875 880 | 2640 |
| cct ttt gct gct ggg agg gtg ttt agc atc agt atg ttg gac act ctg Pro Phe Ala Ala Gly Arg Val Phe Ser Ile Ser Met Leu Asp Thr Leu 885 890 895 | 2688 |
| ctg tat cag tca ttt gtg aag gat tat atg att tct atc acg aga ctt Leu Tyr Gln Ser Phe Val Lys Asp Tyr Met Ile Ser Ile Thr Arg Leu 900 905 910 | 2736 |
| ctg ttg gga ctg gac act aca cca gga tct ggg ttt ctt tgt tct atg Leu Leu Gly Leu Asp Thr Thr Pro Gly Ser Gly Phe Leu Cys Ser Met 915 920 925 | 2784 |
| aaa atc act gca gat gac tta tgg atc aga act tat gcc aga ctt tat Lys Ile Thr Ala Asp Asp Leu Trp Ile Arg Thr Tyr Ala Arg Leu Tyr 930 935 940 | 2832 |
| cag aag ttg tgt tct tct act gga gat gtt ccc att gga atc tac agg Gln Lys Leu Cys Ser Thr Gly Asp Val Pro Ile Gly Ile Tyr Arg 945 950 955 960 | 2880 |
| act gag tct cag aaa ctt act aca tct gag tct caa ata tct atc agt Thr Glu Ser Gln Lys Leu Thr Thr Ser Glu Ser Gln Ile Ser Ile Ser 965 970 975 | 2928 |
| gta gaa gag tgg gaa gac acc aaa gac tcc aaa gaa caa ggg cac cac Val Glu Glu Trp Glu Asp Thr Lys Asp Ser Lys Glu Gln Gly His His 980 985 990 | 2976 |
| cgc agc aac cac cgc aac tca aca tcc agt gac cag tcg gac cat ccc Arg Ser Asn His Arg Asn Ser Thr Ser Ser Asp Gln Ser Asp His Pro 995 1000 1005 | 3024 |
| ttg ctg cgg aga aaa agc atg cag tgg gcc cga aga ctg agc aga aaa Leu Leu Arg Arg Lys Ser Met Gln Trp Ala Arg Arg Leu Ser Arg Lys 1010 1015 1020 | 3072 |

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ggc cca aaa cac tct ggt aaa aca gct gaa aaa ata acc cag cag cga 3120
Gly Pro Lys His Ser Gly Lys Thr Ala Glu Lys Ile Thr Gln Gln Arg
1025          1030          1035          1040

ctg aac ctc tac agg agg tca gaa aga caa gag ctt gct gaa ctt gtg 3168
Leu Asn Leu Tyr Arg Arg Ser Glu Arg Gln Glu Leu Ala Glu Leu Val
          1045          1050          1055

aaa aat aga atg aaa cac ttg ggt ctt tct aca gtg gga tat gat gaa 3216
Lys Asn Arg Met Lys His Leu Gly Leu Ser Thr Val Gly Tyr Asp Glu
          1060          1065          1070

atg aat gat cat caa agt acc ctc tcc tac atc ctg att aac cca tct 3264
Met Asn Asp His Gln Ser Thr Leu Ser Tyr Ile Leu Ile Asn Pro Ser
          1075          1080          1085

cca gat acc aga ata gag ctg aat gat gtt gta tac tta att cga cca 3312
Pro Asp Thr Arg Ile Glu Leu Asn Asp Val Val Tyr Leu Ile Arg Pro
          1090          1095          1100

gat cca ctg gcc tac ctt cca aac agt gag ccc agt cga aga aac agc 3360
Asp Pro Leu Ala Tyr Leu Pro Asn Ser Glu Pro Ser Arg Arg Asn Ser
1105          1110          1115          1120

atc tgc aat gtc act ggt caa gat tct cgg gag gaa act caa ctt tga 3408
Ile Cys Asn Val Thr Gly Gln Asp Ser Arg Glu Glu Thr Gln Leu
          1125          1130          1135

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<210> 4
<211> 1135
<212> PRT
<213> Homo sapiens

<220>
<223> human Slo4 potassium channel alpha subunit

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          20          25          30
Val Gln Val Glu Phe Tyr Met Asn Glu Asn Thr Phe Lys Glu Arg Leu
          35          40          45
Lys Leu Phe Phe Ile Lys Asn Gln Arg Ser Ser Leu Arg Ile Arg Leu
          50          55          60
Phe Asn Phe Ser Leu Lys Leu Leu Ser Cys Leu Leu Tyr Ile Ile Arg
          65          70          75          80
Val Leu Leu Glu Asn Pro Ser Gln Gly Asn Glu Trp Ser His Ile Phe
          85          90          95
Trp Val Asn Arg Ser Leu Pro Leu Trp Gly Leu Gln Val Ser Val Ala
          100          105          110
Leu Ile Ser Leu Phe Glu Thr Ile Leu Leu Gly Tyr Leu Ser Tyr Lys
          115          120          125
Gly Asn Ile Trp Glu Gln Ile Leu Arg Ile Pro Phe Ile Leu Glu Ile
          130          135          140
Ile Asn Ala Val Pro Phe Ile Ile Ser Ile Phe Trp Pro Ser Leu Arg
          145          150          155          160
Asn Leu Phe Val Pro Val Phe Leu Asn Cys Trp Leu Ala Lys His Ala
          165          170          175

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15

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| Pro | Asp | Glu | Glu | Met | Ser | Ser | Asn | Leu | Glu | Tyr | Ala | Lys | Gly | Tyr | Pro | 660 | 665 | 670 |
| Pro | Tyr | Ser | Pro | Tyr | Ile | Gly | Ser | Ser | Pro | Thr | Phe | Cys | His | Leu | Leu | 675 | 680 | 685 |
| His | Glu | Lys | Val | Pro | Phe | Cys | Cys | Leu | Arg | Leu | Asp | Lys | Ser | Cys | Gln | 690 | 695 | 700 |
| His | Asn | Tyr | Tyr | Glu | Asp | Ala | Lys | Ala | Tyr | Gly | Phe | Lys | Asn | Lys | Leu | 705 | 710 | 715 |
| Ile | Ile | Val | Ala | Ala | Glu | Thr | Ala | Gly | Asn | Gly | Leu | Tyr | Asn | Phe | Ile | 720 | 725 | 730 |
| Val | Pro | Leu | Arg | Ala | Tyr | Tyr | Arg | Pro | Lys | Lys | Glu | Leu | Asn | Pro | Ile | 735 | 740 | 745 |
| Val | Leu | Leu | Leu | Asp | Asn | Pro | Pro | Asp | Met | His | Phe | Leu | Asp | Ala | Ile | 750 | 755 | 760 |
| Cys | Trp | Phe | Pro | Met | Val | Tyr | Tyr | Met | Val | Gly | Ser | Ile | Asp | Asn | Leu | 765 | 770 | 775 |
| Asp | Asp | Leu | Leu | Arg | Cys | Gly | Val | Thr | Phe | Ala | Ala | Asn | Met | Val | Val | 780 | 785 | 790 |
| Val | Asp | Lys | Glu | Ser | Thr | Met | Ser | Ala | Glu | Glu | Asp | Tyr | Met | Ala | Asp | 795 | 800 | 805 |
| Ala | Lys | Thr | Ile | Val | Asn | Val | Gln | Thr | Leu | Phe | Arg | Leu | Phe | Ser | Ser | 810 | 815 | 820 |
| Leu | Ser | Ile | Ile | Thr | Glu | Leu | Thr | His | Pro | Ala | Asn | Met | Arg | Phe | Met | 825 | 830 | 835 |
| Gln | Phe | Arg | Ala | Lys | Asp | Cys | Tyr | Ser | Leu | Ala | Leu | Ser | Lys | Leu | Glu | 840 | 845 | 850 |
| Lys | Lys | Glu | Arg | Glu | Arg | Gly | Ser | Asn | Leu | Ala | Phe | Met | Phe | Arg | Leu | 855 | 860 | 865 |
| Pro | Phe | Ala | Ala | Gly | Arg | Val | Phe | Ser | Ile | Ser | Met | Leu | Asp | Thr | Leu | 870 | 875 | 880 |
| Leu | Tyr | Gln | Ser | Phe | Val | Lys | Asp | Tyr | Met | Ile | Ser | Ile | Thr | Arg | Leu | 885 | 890 | 895 |
| Leu | Leu | Gly | Leu | Asp | Thr | Thr | Pro | Gly | Ser | Gly | Phe | Leu | Cys | Ser | Met | 900 | 905 | 910 |
| Lys | Ile | Thr | Ala | Asp | Asp | Leu | Trp | Ile | Arg | Thr | Tyr | Ala | Arg | Leu | Tyr | 915 | 920 | 925 |
| Gln | Lys | Leu | Cys | Ser | Ser | Thr | Gly | Asp | Val | Pro | Ile | Gly | Ile | Tyr | Arg | 930 | 935 | 940 |
| Thr | Glu | Ser | Gln | Lys | Leu | Thr | Thr | Ser | Glu | Ser | Gln | Ile | Ser | Ile | Ser | 945 | 950 | 955 |
| Val | Glu | Glu | Trp | Glu | Asp | Thr | Lys | Asp | Ser | Lys | Glu | Gln | Gly | His | His | 960 | 965 | 970 |
| Arg | Ser | Asn | His | Arg | Asn | Ser | Thr | Ser | Ser | Asp | Gln | Ser | Asp | His | Pro | 975 | 980 | 985 |
| Leu | Leu | Arg | Arg | Lys | Ser | Met | Gln | Trp | Ala | Arg | Arg | Leu | Ser | Arg | Lys | 990 | 995 | 1000 |
| Gly | Pro | Lys | His | Ser | Gly | Lys | Thr | Ala | Glu | Lys | Ile | Thr | Gln | Gln | Arg | 1005 | 1010 | 1015 |
| Leu | Asn | Leu | Tyr | Arg | Arg | Ser | Glu | Arg | Gln | Glu | Leu | Ala | Glu | Leu | Val | 1020 | 1025 | 1030 |
| Lys | Asn | Arg | Met | Lys | His | Leu | Gly | Leu | Ser | Thr | Val | Gly | Tyr | Asp | Glu | 1035 | 1040 | 1045 |
| Met | Asn | Asp | His | Gln | Ser | Thr | Leu | Ser | Tyr | Ile | Leu | Ile | Asn | Pro | Ser | 1050 | 1055 | 1060 |
| Pro | Asp | Thr | Arg | Ile | Glu | Leu | Asn | Asp | Val | Val | Tyr | Leu | Ile | Arg | Pro | 1065 | 1070 | 1075 |
| Asp | Pro | Leu | Ala | Tyr | Leu | Pro | Asn | Ser | Glu | Pro | Ser | Arg | Arg | Asn | Ser | 1080 | 1085 | 1090 |
| Ile | Cys | Asn | Val | Thr | Gly | Gln | Asp | Ser | Arg | Glu | Glu | Thr | Gln | Leu | | 1095 | 1100 | 1105 |
| | | | | | | | | | | | | | | | | 1110 | 1115 | 1120 |
| | | | | | | | | | | | | | | | | 1125 | 1130 | 1135 |

<210> 5
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:Slo2
 gene-specific nested RACE PCR amplification sense
 primer oligo 1

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 <210> 6
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 <220>
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 sense primer oligo 2

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 <210> 7
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 <220>
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 antisense primer oligo 3

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 nested 5' RACE PCR amplification antisense primer
 oligo 4

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 <212> DNA
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 antisense primer oligo 5

 <400> 9
 cccattgccg gccgtctctg ccgag 25

 <210> 10
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:Slo2
 gene-specific nested 5' RACE PCR amplification
 antisense primer oligo 6

 <400> 10
 cttgaaccg taggccttgg cgtcttc 27

 <210> 11
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:new
 Slo2-specific 5' PCR amplification antisense
 primer oligo 7

 <400> 11
 cacaccacgt ggtcagcaaa cttgacg 27

 <210> 12
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:new
 Slo2-specific 5' PCR amplification antisense
 primer oligo 8

 <400> 12
 gcagttgggg gcgaagtcct tcacgg 26

 <210> 13
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:Slo2 overlap
 extension PCR amplification sense primer oligo 9

<400> 13
 caccttcaag gagcgggtca agctg 25

<210> 14
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Slo2 overlap
 extension PCR amplification antisense primer oligo
 10

<400> 14
 gacgtgtgca ccagcagggt gatgag 26

<210> 15
 <211> 26
 <212> DNA
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<220>
 <223> Description of Artificial Sequence:Slo2 overlap
 extension PCR amplification sense primer oligo 11

<400> 15
 gtttcacgtc aagtttgctg accacg 26

<210> 16
 <211> 24
 <212> DNA
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<220>
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 extension PCR amplification antisense primer oligo
 12

<400> 16
 ccgtacgtgc ggatccacag gtcg 24

<210> 17
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<220>
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 amplification sense primer oligo 13

<400> 17
 cgtgaaggac tacatgatca ccac 25

<210> 18
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 <212> DNA
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 <223> Description of Artificial Sequence:Slo2 overlap
 extension PCR amplification antisense primer oligo
 14

 <400> 18
 ttagagctgt gtctcgtcgc gagtctc 27

 <210> 19
 <211> 17
 <212> DNA
 <213> Artificial Sequence

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 <223> Description of Artificial Sequence:Slo2
 amplification sense primer oligo 15

 <400> 19
 atggcgcgagg ccaagct 17

 <210> 20
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:Slo2
 amplification antisense primer oligo 16

 <400> 20
 gagacaggga ggagtccagg ctgaa 25

 <210> 21
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:Slo2
 amplification primer oligo 17

 <400> 21
 cgtgggccag aggcttcctg tagaa 25

 <210> 22
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:Slo2
 amplification primer oligo 18

<400> 22
 gctcccagat gttgcctttg tagctg 26

<210> 23
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Slo4
 amplification sense primer oligo 19

<400> 23
 ggcgtctgct tgattggtgt tagga 25

<210> 24
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Slo4
 amplification antisense primer oligo 20
 overlapping the stop codon in the EST sequence

<400> 24
 atcaaagttg agtttctctc cgag 24

<210> 25
 <211> 25
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Slo4-specific
 5' RACE PCR amplification antisense primer oligo
 21

<400> 25
 cccggagcat ctaccgtaca tcttc 25

<210> 26
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 <223> Description of Artificial Sequence:Slo4-specific
 nested 5' RACE PCR amplification antisense primer
 oligo 22

<400> 26
 ccagctgttc aaactgtatg ggtag 25

<210> 27
 <211> 25
 <212> DNA
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 <220>
 <223> Description of Artificial Sequence:Description of
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 amplification antisense primer oligo 23

 <400> 27
 gcttggagga ccatgtttca ggagt 25

 <210> 28
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:Slo4
 amplification sense primer oligo 24 overlapping
 the initiator Met codon

 <400> 28
 atggttgatt tggagagcga agtg 24

 <210> 29
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:Slo4-specific
 amplification sense primer oligo 25

 <400> 29
 caattttgag agcatgggct gtgaaag 27

 <210> 30
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:Slo4-specific
 amplification sense primer oligo 26

 <400> 30
 gacttatgga tcagaactta tgcccag 27

 <210> 31
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:Slo4-specific
amplification antisense primer oligo 27

<400> 31

catctggtgt agtttcatct tctgattgg

29

<210> 32

<211> 1237

<212> PRT

<213> Rattus norvegicus

<220>

<223> rat potassium channel subunit SLACK

<400> 32

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Arg | Ala | Lys | Leu | Pro | Arg | Ser | Pro | Ser | Glu | Gly | Lys | Ala | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Pro | Gly | Asp | Thr | Pro | Ala | Gly | Ser | Ala | Ala | Pro | Glu | Glu | Pro | His | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Leu | Ser | Pro | Leu | Leu | Pro | Thr | Arg | Gly | Gly | Gly | Ser | Val | Gly | Ser | Asp |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Val | Gly | Gln | Arg | Leu | His | Val | Glu | Asp | Phe | Ser | Leu | Asp | Ser | Ser | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Ser | Gln | Val | Gln | Val | Glu | Phe | Tyr | Val | Asn | Glu | Asn | Thr | Phe | Lys | Glu |
| | 65 | | | | 70 | | | | | 75 | | | | | 80 |
| Arg | Leu | Lys | Leu | Phe | Phe | Ile | Lys | Asn | Gln | Arg | Ser | Ser | Leu | Arg | Ile |
| | | | 85 | | | | | 90 | | | | | | 95 | |
| Arg | Leu | Phe | Asn | Phe | Ser | Leu | Lys | Leu | Leu | Thr | Cys | Leu | Leu | Tyr | Ile |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Val | Arg | Val | Leu | Leu | Asp | Asn | Pro | Asp | Gln | Gly | Ile | Gly | Cys | Trp | Gly |
| | | 115 | | | | 120 | | | | | | 125 | | | |
| Cys | Thr | Lys | Tyr | Asn | Tyr | Thr | Phe | Asn | Gly | Ser | Ser | Glu | Phe | His | |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Trp | Ala | Pro | Ile | Leu | Trp | Val | Glu | Arg | Lys | Met | Ala | Leu | Trp | Val | Ile |
| | 145 | | | | 150 | | | | | 155 | | | | | 160 |
| Gln | Val | Ile | Val | Ala | Thr | Ile | Ser | Phe | Leu | Glu | Thr | Met | Leu | Leu | Ile |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Tyr | Leu | Ser | Tyr | Lys | Gly | Asn | Ile | Trp | Glu | Gln | Ile | Phe | His | Val | Ser |
| | | 180 | | | | | 185 | | | | | | 190 | | |
| Phe | Val | Leu | Glu | Met | Ile | Asn | Thr | Leu | Pro | Phe | Ile | Ile | Thr | Val | Phe |
| | | 195 | | | | | 200 | | | | | | 205 | | |
| Trp | Pro | Pro | Leu | Arg | Asn | Leu | Phe | Ile | Pro | Val | Phe | Leu | Asn | Cys | Trp |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Ala | Lys | His | Ala | Leu | Glu | Asn | Met | Ile | Asn | Asp | Phe | His | Arg | Ala |
| | 225 | | | | 230 | | | | | 235 | | | | | 240 |
| Ile | Leu | Arg | Thr | Gln | Ser | Ala | Met | Phe | Asn | Gln | Val | Leu | Ile | Leu | Phe |
| | | | 245 | | | | | | 250 | | | | | 255 | |
| Cys | Thr | Leu | Leu | Cys | Leu | Val | Phe | Thr | Gly | Thr | Cys | Gly | Ile | Gln | His |
| | | 260 | | | | | | 265 | | | | | 270 | | |
| Leu | Glu | Arg | Ala | Gly | Gly | Asn | Leu | Asn | Leu | Leu | Thr | Ser | Phe | Tyr | Phe |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Cys | Ile | Val | Thr | Phe | Ser | Thr | Val | Gly | Phe | Gly | Asp | Val | Thr | Pro | Lys |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Ile | Trp | Pro | Ser | Gln | Leu | Leu | Val | Val | Ile | Leu | Ile | Cys | Val | Thr | Leu |
| | 305 | | | | 310 | | | | | 315 | | | | | 320 |
| Val | Val | Leu | Pro | Leu | Gln | Phe | Glu | Glu | Leu | Val | Tyr | Leu | Trp | Met | Glu |
| | | | 325 | | | | | | 330 | | | | | 335 | |
| Arg | Gln | Lys | Ser | Gly | Gly | Asn | Tyr | Ser | Arg | His | Arg | Ala | Arg | Thr | Glu |
| | | | 340 | | | | | 345 | | | | | 350 | | |

Lys His Val Val Leu Cys Val Ser Ser Leu Lys Ile Asp Leu Leu Met
 355 360 365
 Asp Phe Leu Asn Glu Phe Tyr Ala His Pro Arg Leu Gln Asp Tyr Tyr
 370 375 380
 Val Val Ile Leu Cys Pro Ser Glu Met Asp Val Gln Val Arg Arg Val
 385 390 395 400
 Leu Gln Ile Pro Leu Trp Ser Gln Arg Val Ile Tyr Leu Gln Gly Ser
 405 410 415
 Ala Leu Lys Asp Gln Asp Leu Met Arg Ala Lys Met Asp Asn Gly Glu
 420 425 430
 Ala Cys Phe Ile Leu Ser Ser Arg Asn Glu Val Asp Arg Thr Ala Ala
 435 440 445
 Asp His Gln Thr Ile Leu Arg Ala Trp Ala Val Lys Asp Phe Ala Pro
 450 455 460
 Asn Cys Pro Leu Tyr Val Gln Ile Leu Lys Pro Glu Asn Lys Phe His
 465 470 475 480
 Val Lys Phe Ala Asp His Val Val Cys Glu Glu Cys Lys Tyr Ala
 485 490 495
 Met Leu Ala Leu Asn Cys Ile Cys Pro Ala Thr Ser Thr Leu Ile Thr
 500 505 510
 Leu Leu Val His Thr Ser Arg Gly Gln Glu Gly Gln Glu Ser Pro Glu
 515 520 525
 Gln Trp Gln Arg Met Tyr Gly Arg Cys Ser Gly Asn Glu Val Tyr His
 530 535 540
 Ile Arg Met Gly Asp Ser Lys Phe Phe Arg Glu Tyr Glu Gly Lys Ser
 545 550 555 560
 Phe Thr Tyr Ala Ala Phe His Ala His Lys Lys Tyr Gly Val Cys Leu
 565 570 575
 Ile Gly Leu Lys Arg Glu Glu Asn Lys Ser Ile Leu Leu Asn Pro Gly
 580 585 590
 Pro Arg His Ile Leu Ala Ala Ser Asp Thr Cys Phe Tyr Ile Asn Ile
 595 600 605
 Thr Lys Glu Glu Asn Ser Ala Phe Ile Phe Lys Gln Glu Glu Lys Gln
 610 615 620
 Asn Arg Arg Gly Leu Ala Gly Gln Ala Leu Tyr Glu Gly Pro Ser Arg
 625 630 635 640
 Leu Pro Val His Ser Ile Ile Ala Ser Met Val Ala Met Asp Leu Gln
 645 650 655
 Asn Thr Asp Cys Arg Pro Ser Gln Gly Gly Ser Gly Gly Gly Gly Gly
 660 665 670
 Lys Leu Thr Leu Pro Thr Glu Asn Gly Ser Gly Ser Arg Arg Pro Ser
 675 680 685
 Ile Ala Pro Val Leu Glu Leu Ala Asp Ser Ser Ala Leu Leu Pro Cys
 690 695 700
 Asp Leu Leu Ser Asp Gln Ser Glu Asp Glu Val Thr Pro Ser Asp Asp
 705 710 715 720
 Glu Gly Leu Ser Val Val Glu Tyr Val Lys Gly Tyr Pro Pro Asn Ser
 725 730 735
 Pro Tyr Ile Gly Ser Ser Pro Thr Leu Cys His Leu Leu Pro Val Lys
 740 745 750
 Ala Pro Phe Cys Cys Leu Arg Leu Asp Lys Gly Cys Lys His Asn Ser
 755 760 765
 Tyr Glu Asp Ala Lys Ala Tyr Gly Phe Lys Asn Lys Leu Ile Ile Val
 770 775 780
 Ser Ala Glu Thr Ala Gly Asn Gly Leu Tyr Asn Phe Ile Val Pro Leu
 785 790 795 800
 Arg Ala Tyr Tyr Arg Ser Arg Arg Glu Leu Asn Pro Ile Val Leu Leu
 805 810 815
 Leu Asp Asn Lys Pro Asp His His Phe Leu Glu Ala Ile Cys Cys Phe
 820 825 830

Pro Met Val Tyr Tyr Met Glu Gly Ser Val Asp Asn Leu Asp Ser Leu
 835 840 845
 Leu Gln Cys Gly Ile Ile Tyr Ala Asp Asn Leu Val Val Asp Lys
 850 855 860
 Glu Ser Thr Met Ser Ala Glu Glu Asp Tyr Met Ala Asp Ala Lys Thr
 865 870 875 880
 Ile Val Asn Val Gln Thr Met Phe Arg Leu Phe Pro Ser Leu Ser Ile
 885 890 895
 Thr Thr Glu Leu Thr His Pro Ser Asn Met Arg Phe Met Gln Phe Arg
 900 905 910
 Ala Lys Asp Ser Tyr Ser Leu Ala Leu Ser Lys Leu Glu Lys Gln Glu
 915 920 925
 Arg Glu Asn Gly Ser Asn Leu Ala Phe Met Phe Arg Leu Pro Phe Ala
 930 935 940
 Ala Gly Arg Val Phe Ser Ile Ser Met Leu Asp Thr Leu Leu Tyr Gln
 945 950 955 960
 Ser Phe Val Lys Asp Tyr Met Ile Thr Ile Thr Arg Leu Leu Leu Gly
 965 970 975
 Leu Asp Thr Thr Pro Gly Ser Gly Tyr Leu Cys Ala Met Lys Val Thr
 980 985 990
 Glu Asp Asp Leu Trp Ile Arg Thr Tyr Gly Arg Leu Phe Gln Lys Leu
 995 1000 1005
 Cys Ser Ser Ser Ala Glu Ile Pro Ile Gly Ile Tyr Arg Thr Glu Cys
 1010 1015 1020
 His Val Phe Ser Ser Glu Pro His Asp Leu Arg Ala Gln Ser Gln Ile
 1025 1030 1035 1040
 Ser Val Asn Met Glu Asp Cys Glu Asp Thr Arg Glu Ala Lys Gly Pro
 1045 1050 1055
 Trp Gly Thr Arg Ala Ala Ser Gly Gly Gly Ser Thr His Gly Arg His
 1060 1065 1070
 Gly Gly Ser Ala Asp Pro Val Glu His Pro Leu Leu Arg Arg Lys Ser
 1075 1080 1085
 Leu Gln Trp Ala Arg Lys Leu Ser Arg Lys Ser Lys Gln Ala Gly
 1090 1095 1100
 Lys Ala Pro Met Thr Thr Asp Trp Ile Thr Gln Gln Arg Leu Ser Leu
 1105 1110 1115 1120
 Tyr Arg Arg Ser Glu Arg Gln Glu Leu Ser Glu Leu Val Lys Asn Arg
 1125 1130 1135
 Met Lys His Leu Gly Leu Pro Thr Thr Gly Tyr Glu Asp Val Ala Asn
 1140 1145 1150
 Leu Thr Ala Ser Asp Val Met Asn Arg Val Asn Leu Gly Tyr Leu Gln
 1155 1160 1165
 Asp Glu Met Asn Asp His His Gln Asn Thr Leu Ser Tyr Val Leu Ile
 1170 1175 1180
 Asn Pro Pro Pro Asp Thr Arg Leu Glu Pro Asn Asp Ile Val Tyr Leu
 1185 1190 1195 1200
 Ile Arg Ser Asp Pro Leu Ala His Val Thr Ser Ser Ser Gln Ser Arg
 1205 1210 1215
 Lys Ser Ser Cys Ser Asn Lys Leu Ser Ser Cys Asn Pro Glu Thr Arg
 1220 1225 1230
 Asp Glu Thr Gln Leu
 1235

<210> 33

<211> 1151

<212> PRT

<213> Homo sapiens

<220>

<223> partial human cDNA KIAA1422

26

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| Arg | Asn | Glu | Val | Asp | Arg | Thr | Ala | Ala | Asp | His | Gln | Thr | Ile | Leu | Arg | 485 | 490 | 495 |
| Ala | Trp | Ala | Val | Lys | Asp | Phe | Ala | Pro | Asn | Cys | Pro | Leu | Tyr | Val | Gln | 500 | 505 | 510 |
| Ile | Leu | Lys | Pro | Glu | Asn | Lys | Phe | His | Val | Lys | Phe | Ala | Asp | His | Val | 515 | 520 | 525 |
| Val | Cys | Glu | Glu | Glu | Cys | Lys | Tyr | Ala | Met | Leu | Ala | Leu | Asn | Cys | Ile | 530 | 535 | 540 |
| Cys | Pro | Ala | Thr | Ser | Thr | Leu | Ile | Thr | Leu | Leu | Val | His | Thr | Ser | Arg | 545 | 550 | 555 |
| Gly | Gln | Glu | Gly | Gln | Glu | Ser | Pro | Glu | Gln | Trp | Gln | Arg | Met | Tyr | Gly | 565 | 570 | 575 |
| Arg | Cys | Ser | Gly | Asn | Glu | Val | Tyr | His | Ile | Arg | Met | Gly | Asp | Ser | Lys | 580 | 585 | 590 |
| Phe | Phe | Arg | Glu | Tyr | Glu | Gly | Lys | Ser | Phe | Thr | Tyr | Ala | Ala | Phe | His | 595 | 600 | 605 |
| Ala | His | Lys | Lys | Tyr | Gly | Val | Cys | Leu | Ile | Gly | Leu | Lys | Arg | Glu | Asp | 610 | 615 | 620 |
| Asn | Lys | Ser | Ile | Leu | Leu | Asn | Pro | Gly | Pro | Arg | His | Ile | Leu | Ala | Ala | 625 | 630 | 635 |
| Ser | Asp | Thr | Cys | Phe | Tyr | Ile | Asn | Ile | Thr | Lys | Glu | Glu | Asn | Ser | Ala | 645 | 650 | 655 |
| Phe | Ile | Phe | Lys | Gln | Glu | Glu | Lys | Arg | Lys | Lys | Arg | Ala | Phe | Ser | Gly | 660 | 665 | 670 |
| Gln | Gly | Leu | His | Glu | Gly | Pro | Ala | Arg | Leu | Pro | Val | His | Ser | Ile | Ile | 675 | 680 | 685 |
| Ala | Ser | Met | Gly | Thr | Val | Ala | Met | Asp | Leu | Gln | Gly | Thr | Glu | His | Arg | 690 | 695 | 700 |
| Pro | Thr | Gln | Ser | Gly | Gly | Gly | Gly | Gly | Gly | Ser | Lys | Leu | Ala | Leu | Pro | 705 | 710 | 715 |
| Thr | Glu | Asn | Gly | Ser | Gly | Ser | Arg | Arg | Pro | Ser | Ile | Ala | Pro | Val | Leu | 725 | 730 | 735 |
| Glu | Leu | Ala | Asp | Ser | Ser | Ala | Leu | Leu | Pro | Cys | Asp | Leu | Leu | Ser | Asp | 740 | 745 | 750 |
| Gln | Ser | Glu | Asp | Glu | Val | Thr | Pro | Ser | Asp | Asp | Glu | Gly | Leu | Ser | Val | 755 | 760 | 765 |
| Val | Glu | Tyr | Val | Lys | Gly | Tyr | Pro | Pro | Asn | Ser | Pro | Tyr | Ile | Gly | Ser | 770 | 775 | 780 |
| Ser | Pro | Thr | Leu | Cys | His | Leu | Leu | Pro | Val | Lys | Ala | Pro | Phe | Cys | Cys | 785 | 790 | 795 |
| Leu | Arg | Leu | Asp | Lys | Gly | Cys | Lys | His | Asn | Ser | Tyr | Glu | Asp | Ala | Lys | 805 | 810 | 815 |
| Ala | Tyr | Gly | Phe | Lys | Asn | Lys | Leu | Ile | Val | Ser | Ala | Glu | Thr | Ala | | 820 | 825 | 830 |
| Gly | Asn | Gly | Leu | Tyr | Asn | Phe | Ile | Val | Pro | Leu | Arg | Ala | Tyr | Tyr | Arg | 835 | 840 | 845 |
| Ser | Arg | Lys | Glu | Leu | Asn | Pro | Ile | Val | Leu | Leu | Leu | Asp | Asn | Lys | Pro | 850 | 855 | 860 |
| Asp | His | His | Phe | Leu | Glu | Ala | Ile | Cys | Cys | Phe | Pro | Met | Val | Tyr | Tyr | 865 | 870 | 875 |
| Met | Glu | Gly | Ser | Val | Asp | Asn | Leu | Asp | Ser | Leu | Leu | Gln | Cys | Gly | Ile | 885 | 890 | 895 |
| Ile | Tyr | Ala | Asp | Asn | Leu | Val | Val | Val | Asp | Lys | Glu | Ser | Thr | Met | Ser | 900 | 905 | 910 |
| Ala | Glu | Glu | Asp | Tyr | Met | Ala | Asp | Ala | Lys | Thr | Ile | Val | Asn | Val | Gln | 915 | 920 | 925 |
| Thr | Met | Phe | Arg | Leu | Phe | Pro | Ser | Leu | Ser | Ile | Thr | Thr | Glu | Leu | Thr | 930 | 935 | 940 |
| His | Pro | Ser | Asn | Met | Arg | Phe | Met | Gln | Phe | Arg | Ala | Lys | Asp | Ser | Tyr | 945 | 950 | 955 |
| | | | | | | | | | | | | | | | | | | 960 |

Ser Leu Ala Leu Ser Lys Leu Glu Lys Arg Glu Arg Glu Asn Gly Ser
 965 970 975
 Asn Leu Ala Phe Met Phe Arg Leu Pro Phe Ala Ala Gly Arg Val Phe
 980 985 990
 Ser Ile Ser Met Leu Asp Thr Leu Leu Tyr Gln Ser Phe Val Lys Asp
 995 1000 1005
 Tyr Met Ile Thr Ile Thr Arg Leu Leu Leu Gly Leu Asp Thr Thr Pro
 1010 1015 1020
 Gly Ser Gly Tyr Leu Cys Ala Met Lys Ile Thr Glu Gly Asp Leu Trp
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 Ile Arg Thr Tyr Gly Arg Leu Phe Gln Lys Leu Cys Ser Ser Ser Ala
 1045 1050 1055
 Glu Ile Pro Ile Gly Ile Tyr Arg Thr Glu Ser His Val Phe Ser Thr
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 Ser Glu Pro His Asp Leu Arg Ala Gln Ser Gln Ile Ser Val Asn Val
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 Glu Asp Cys Glu Asp Thr Arg Glu Val Lys Gly Pro Trp Gly Ser Arg
 1090 1095 1100
 Ala Gly Thr Gly Gly Ser Ser Gln Gly Arg His Thr Gly Gly Gly Asp
 1105 1110 1115 1120
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 Arg Leu Ser Arg Lys Ala Pro Lys Gln Ala Gly Arg Ala Ala Ala
 1140 1145 1150

<210> 34

<211> 200

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:poly Gly
flexible linker

<220>

<221> MOD_RES

<222> (6)..(200)

<223> Gly at positions 6-200 may be present or absent

<400> 34

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 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 20 25 30
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 35 40 45
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 50 55 60
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 65 70 75 80
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 85 90 95
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 100 105 110
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 115 120 125
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 130 135 140
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 145 150 155 160

Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 165 170 175
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 180 185 190
 Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
 195 200

<210> 35
 <211> 38
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Slo2 overlap
 extension PCR amplification antisense primer oligo
 14 plus 5' Xba site for subcloning

<400> 35
 cagggtctag attagagctg tgtctcgctg cgagtctc 38

<210> 36
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Slo2
 amplification sense primer oligo 15 and added
 Kozak consensus sequence for expression vector
 construction

<400> 36
 ccaccatggc gcgggccaag ct 22

<210> 37
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:Slo4
 amplification antisense primer oligo 20
 overlapping the stop codon in the EST sequence and
 5' XbaI restriction site to assist subcloning

<400> 37
 tttatctaga atcaaagttg agtttcctcc cgag 34

<210> 38
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 <212> DNA
 <213> Artificial Sequence

AB
cont.

<220>

<223> Description of Artificial Sequence:Slo4
amplification sense primer oligo 24 overlapping
the initiator Met codon and 5' MunI site for
subcloning and Kozak consensus sequence

<400> 38

atcccaattg ccgccatggt tgatttggag agcgaagtg

39